

POSTOPERATIVE CARE AFTER GERIATRIC AMBULATORY SURGERY: SEVERAL SPECIFIC CONSIDERATIONS

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SUMMARY

In modern societies, elderly populations have increased over the last four decades and have become the main clients of medical services, including anesthesia in an ambulatory care setting, which was first introduced in the early 1900s. With minimal surgical wounds and the broad use of short-acting anesthetics, elderly patients could recover more quickly and fully from surgery. At the same time, effective and efficient postoperative care for elderly patients has become a new challenge for us. We reviewed several specific considerations associated with the natural aging process, which we encountered in the postanesthetic care unit, and also reviewed commonly used criteria and guidelines for discharge from 1-day surgical procedures. We concluded that there should be more research or studies to provide rules for clinicians to take better care of elderly patients. [International Journal of Gerontology 2008; 2(3): 98–102]

Key Words: ambulatory surgery, anesthesia, elderly, geriatrics, outpatient surgery

Introduction

In modern societies, elderly populations have increased over the last four decades¹. Meanwhile, the number of people with chronic diseases has also increased². Elderly people have become the main clients of medical services, including outpatient and inpatient care, surgeries, and nursing centers³.

The ambulatory anesthesia care setting was first introduced in the early 1900s, and the development of improved anesthetic and surgical techniques have made ambulatory (1-day) surgery possible⁴. There have been many benefits making ambulatory surgery popular: patient preference, inability to depend on the availability

of hospital wards, greater flexibility in arranging schedules, lower incidence of iatrogenic infection and respiratory complications, and higher volume with more rapid turnover of patients⁵. Currently, most elective surgeries are completed on an outpatient basis⁶, and the rationale for this will undoubtedly increase in the future to reduce unnecessary medical costs and avoid hospitalization-associated complications⁷.

It remained controversial in the past whether geriatric patients should accept outpatient surgery because of safety considerations and more complications than in younger, healthier adults after surgery or anesthesia. However, because of minimal surgical wounds and the broad use of short-acting anesthetics, elderly patients could also recover better and sooner from surgery^{8,9}.

Because the range of acceptable ambulatory surgery expands continuously and the medical conditions of patients undergoing these procedures are becoming much more complex than before², postanesthetic care should be performed even more carefully and delicately to avoid adverse outcomes in elderly patients^{10,11}.



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Selection of Surgical Procedures

Procedures with minimal postoperative physiologic changes are considered eligible to be performed in the outpatient setting¹². In the past, superficial surgery, such as dermatologic or plastic surgery, or endoscopic procedures surrounding the genitalia were allowed for ambulatory patients. However, many more procedures became acceptable¹³ if they could be finished within 90 minutes, and the effect of the surgery and anesthesia (pain, nausea and vomiting, dizziness) could be managed well in the postanesthetic care unit (PACU)¹⁴. Therefore, in many medical centers with well-trained staff and established techniques, ambulatory procedures expanded to laparoscopic, arthroscopic, minor vascular, neurologic or even thoracoscopic surgery without increasing postoperative complications^{15,16}.

Selection of Patients

Although elderly patients have more complex health conditions and medical history than young adults, they are considered to be eligible to receive ambulatory procedures if they are classified as American Society of Anesthesiologists (ASA) physical status I or II, or medically stable ASA physical status III¹⁷. With improved surgical techniques and anesthesia care, there has been little evidence indicating that the outpatient surgical setting increased postoperative complications in elderly populations, or even in extremely elderly (over 100 years old) patients^{18–21}.

Special Considerations for Elderly Patients' Hemodynamic Recovery at PACU

Natural aging process-associated changes in the cardiovascular system, such as alterations in autonomic regulation, decreased elasticity of vessels and the heart, a higher baseline of sympathetic tone and relatively depleted intravascular volume, could lead to a greater fluctuation of blood pressure both perioperatively and postoperatively. Meanwhile, elderly patients usually have complex cardiovascular conditions, including hypertension, arrhythmias, hypertrophy of the myocardium, dilated heart chambers and valvular heart diseases^{22–24}, which would make these patients much less tolerable to volume shifting during surgery and

liable to suffer from either acute volume overload or hypovolemia.

Postoperative Delirium

Delirium after surgery has remained an important issue for decades^{25–29}. It may cause prolonged hospital stay or postoperative dependence of elderly people. Not enough evidence supported which choice of regional or general anesthesia³⁰, or whether perioperative hemodynamic alterations affected the prevalence of postoperative delirium.

The definite mechanism causing delirium is not yet clear; many hypotheses agreed that delirium is the final clinical consequence of complicated neurotransmitter abnormalities^{31–34} such as overproduction of norepinephrine, dopamine or glutamate, decreased cholinergic activity, or abnormal serotonin and GABA. However, many risk factors for postoperative delirium have been determined^{35–38}: advanced age, preoperative functional or cognitive impairment, immobility or poor physical condition, sleep deprivation, visual or hearing impairment, dehydration, malnutrition, imbalance of electrolytes, depression, anticholinergic medications, and alcohol abuse.

Delirium could be divided into two types according to the psychomotor activities, hyperactive and hypoactive types, with the latter occurring more frequently postoperatively. To diagnose delirium, there are several criteria: disturbed consciousness, cognitive change, rapid onset and fluctuating course, presence of a causal medical condition, or change of substance usage^{39–41}.

Acute Postoperative Pain

Many clinicians treat acute postoperative pain in elderly patients conservatively because of the patients' impaired liver or kidney function, slow recovery of respiratory and cardiovascular conditions, cognitive alterations, or even an age-associated decrease in pain sensation supported by clinical observations or studies⁴². However, leaving pain undertreated in elderly patients could cause some problems^{43–46}: unnecessary delayed discharge, stimulated stress response, or inability to complete daily self-care.

Better rules to treat acute postoperative pain in elderly patients are titration of a single analgesic or

combined analgesia such as nerve block for the periphery with intravenous patient-controlled analgesia. Such management can achieve adequate analgesia and avoid overdose or complications of certain medications^{47–49}.

Discharge Criteria

Complete recovery from anesthesia progresses through three phases: phase I, early phase in PACU, means recovery after cessation of anesthesia until the patient has adequate motor function and normal reflexes; phase II, intermediate phase in the ambulatory surgery unit, means that the patient's Aldrete score is 9 or more; phase III, late phase, or "home-ready" phase, means that the patient has returned to the status as before anesthesia.

In medical centers, patients undergoing ambulatory surgery could be discharged from hospital safely according to several criteria or guidelines.

Scoring System for Discharge Criteria

The most common score used as discharge criteria is the Aldrete score. In this scoring system, five parameters (i.e., activity, respiration, circulation, consciousness, and oxygen saturation) are scored simply 0, 1, and 2. The maximum score is 10, and patients can be discharged if the Aldrete score is 9 or 10.

Guidelines for Safe Discharge

According to Korttila's guidelines for safe discharge home after ambulatory surgery, patients must meet the following health conditions: stable vital signs for more than 1 hour, being oriented in person, place and time, and able to administer fluids orally, void urine, dress, and walk without assistance. In addition, patients should have a responsible adult to accompany them.

Conclusion

In North America, Europe and Australia, ambulatory surgery has increased within the last three to four decades and now accounts for over 65% of elective surgical procedures, including a rapidly increasing population of aged patients. We found no evidence to indicate

increased postoperative complications or mortality rate for elderly patients undergoing surgical management in the outpatient setting, as we followed the present criteria and guidelines to take care of our patients. However, these guidelines were all for the general population rather than for the elderly one. We still lack clinical studies or guidelines to provide a better and reliable service to these elderly patients. As effective and efficient medical service has become a trend in new medical settings, advanced research in the geriatric population would be important and helpful in the future.

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